



Beams Division/RFI Department/HLRF Group

Wide Band Phase Detector

9520-ED-309974

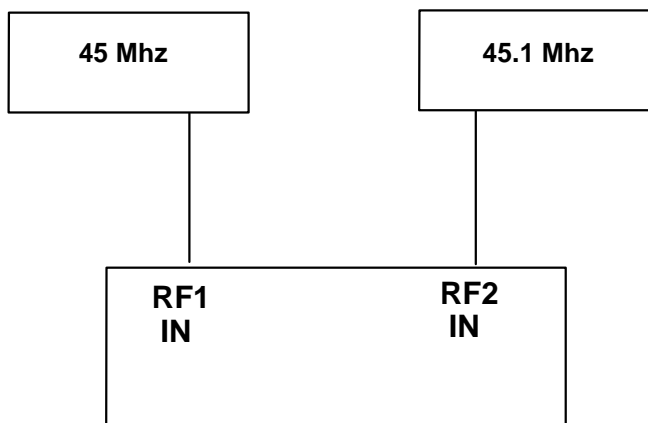
Test Procedure

May 1, 2002

Rene Padilla / Bob Scala

- 1) Install a 1 nano sec cable from **Eout** to the **Error filter signal** Input.
- 2) Set Phase Detector in **Continues Mode**. This is accomplished by moving jumper J1 to B/J1(Cont. Mode).
- 3) Apply AC Power to phase detector and verify Power Supply voltage Levels. (i.e. +/- 15, +/- 5)
- 4) Connect to **RF1**(Anode-Input) and **RF2**(Cathode-Input) inputs, two different 45 MHz RF sources. They should be approximately 100 kHz Apart with their amplitudes set to 0dBm. (see Figure 1 below)

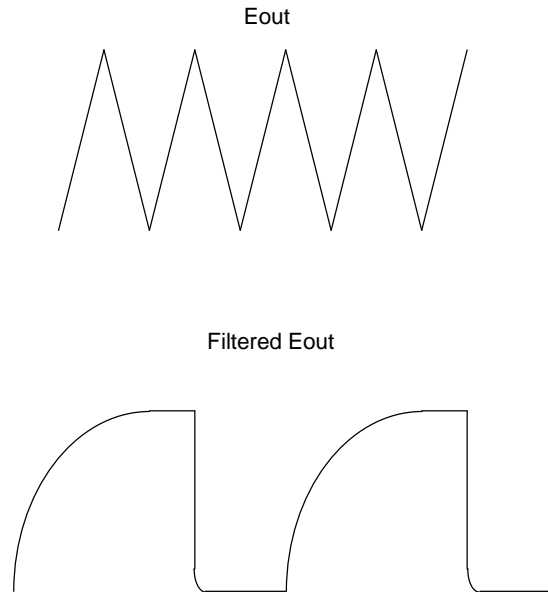
(2) 45 Mhz Sources 100 KHz Seperation



- 5) Check **Direct Out** and calibrate to 4vPP. This is accomplished by adjusting the **R24** pot.

- 6) Check **Eout** and calibrate to 20vPP. This is accomplished by adjusting the **R42** pot.

Figure 2 Output Signals



- 7) Check the **Filtered Eout** output for a signal.
Note: The above figure waveform will only be seen with this rolloff, at about 10-50 kHz of separation not at 100 kHz between the RF inputs.

- 8) Set phase detector in **Trig Mode**. This is accomplished by moving jumper **J1** to **A/J1**(Trig. Mode).

- 9) Check **Eout**: Apply a 5v DC Signal to **Trig 1** to see if a signal appears on **Eout**.

Check that you get a TTL Level signal out of **Trig 1'**
Both on the front and rear panels.

- 10) Apply the 5v DC Signal to **Trig 2** to see if the **Eout** signal goes to zero.

Check that you get a TTL Level signal out of **Trig 2'**
Both on the front and rear panels.

- 11) Apply a 5v DC Signal to **Trig 1**, so a signal reappears on **Eout**.

Then apply the 5v DC signal to the **Inhibit** input. **Eout** should turn off.

Remove the 5v Dc signal from the **Inhibit** input. The signal should reappear on **Eout**.

- 12) Check **RF1 Log monitors** and **RF2 Log Monitors**.
Change the amplitude levels of the RF inputs to verify.

Offset Test Procedure

- 13) **NO RF** should be applied to **RF1** and **RF2** inputs signals.

Apply 5v to **Trig 2** to deactivate **Eout**.

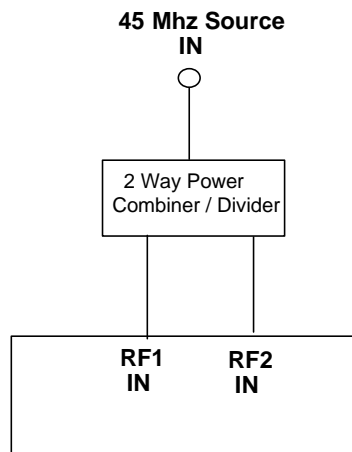
Set **Eout** to have zero volts by adjusting the **R29** pot.

Apply 5v to **Trig 1** to activate **Eout**.

Set **Direct outs** offset pot **R22** to again have a zero offset on **Eout**. Check direct out for any gross offset.

- 14) Apply **In-phase** 45 MHz RF to **RF1** and **RF2** inputs of the Phase detector and look at **Eout**. (See Figure 3)

Figure 3



Select U1 & U2

(2 Way, 90 degree power combiner / Divider)

So **Eout** voltage level is 0v (+/-10mv)